Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Amendment of Parts 1, 2, 22, 24, 27, 90 and 95 of the Commission's Rules to Improve Wireless Coverage Through the Use of Signal Boosters	)	WT Docket No. 10-4
	)	
Wireless Telecommunications Bureau Seeks Comment On Wilson Electronics Petition For Rulemaking to Eliminate The Personal Use Restriction On Wideband Consumer Signal Boosters	)	RM-11784

COMMENTS OF SURECALL

When the Commission adopted its Signal Booster Order ("*Order*") in 2013, it did so with evident caution. As then-Commissioner Pai explained, "[t]oday's item is the product of compromise. . . . Whether these rules ultimately work, . . . will depend upon how they are implemented."[1]

Four years later, we now know the Commission's signal booster rules were a tremendous success. Manufacturers rapidly designed new signal boosters that were compliant with the Commission's newly-adopted Network Protection Standard, the Commission's Laboratory Division promptly certified these new models, and the major wireless carriers authorized their use on their networks.

[1] Amendment of Parts 1, 2, 22, 24, 27, 90 and 95 of the Commission's Rules to Improve Wireless Coverage Through the Use of Signal Boosters, Report and Order, WT Docket No. 10-4, FCC 13-21 (February 20, 2013) ("*Order*").

Twenty one of the new Consumer Signal Booster models were developed by Surecall.[2] Surecall has since sold about 50 thousand of these new units in the United States and Surecall has received no complaints of harmful interference resulting from its signal boosters.

Given this success, it is appropriate for the Commission to consider whether the rules that it adopted in 2013 for Consumer Signal Boosters were overly restrictive and whether they could be streamlined to enable additional user groups to benefit from the increased reliability and reach that signal boosters provide for wireless broadband access. This would be consistent with the mandate of the new Administration to eliminate unnecessary regulation that may impeded economic growth and commerce.

The Commission's *Order* included three sets of restrictions on Consumer Signal Boosters to prevent harmful interference to wireless networks. First, the Commission adopted its Network Protection Standard to ensure that new Consumer Signal Booster models were designed with sufficient measures to avoid interference into wireless networks. The Commission acknowledged that the Network Protection Standard was "stringent" and "incorporate[s] sufficient safeguards to mitigate interference to wireless networks."[3]

Second, the Commission adopted a registration requirement, mandating that all users of Consumer Signal Boosters register their boosters with their carriers. The registration process ensured that the wireless carriers have ultimate control over the use of boosters on their networks.

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[2] Surecall is an innovation leader in cellular amplifier technology that dramatically improves cellular communication for businesses, homes and in mobile settings. Founded in 2001 under its original name, Cellphone-Mate, Surecall, is based in Silicon Valley and is an industry leader with multiple patents pending on our superior signal amplifier technology. SureCall serves the signal amplification needs of such Fortune 100 and 500 companies as Chrysler, Hewlett-Packard, Exxon Mobile, and Newell-Rubbermaid. Our products are also used by the U.S. Military and State Department, as well as major universities such as Stanford and Duke.

[3] *Order*, ¶ 2.

As the Commission explained, if a carrier notifies a subscriber that a booster is causing harmful interference "the subscriber must shut down the device immediately or as soon as practicable."[4] The carriers can also take their own measures to address an interfering boosters. As the Commission observed, "a wireless provider can shut off a subscriber's service if the subscriber refuses to shut down a signal booster that causes harmful interference."[5]

Third, the Commission adopted a personal use restriction. The justification for this restriction was less clearly defined in the *Order*. The Commission appeared to conclude that individual users of signal booster were more likely to use a booster with only one wireless carrier, as compared to boosters in non-personal settings, which may be used by subscribers of all or most wireless carriers. At the same time, the Commission acknowledged that this assumption would not always be correct, or even desirable. The Commission observed that "a subscriber may be authorized to operate a Consumer Signal Booster to connect to his/her wireless provider and a third party may also wish to use the booster occasionally to connect to the third party's wireless provider."[6] Such third party use would clearly be desirable, particularly during medical or other emergencies when third parties may use wireless devices to request assistance.

The personal use restriction was also imperfect in other ways. Most important, it expressly rejected the use of Consumer Signal Boosters by businesses, industry, and entrepreneurs even though the extensive record in the Commission's proceeding clearly demonstrated the significant need for access to such boosters by non-individuals. Therefore, the Commission should initiate a new proceeding to reexamine its personal use restriction on

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[4] *Id.*, ¶ 29.

[5] *Id.*

[6] *Id.*, ¶ 48.

wideband Consumer Signal Boosters. As the past four years have clearly demonstrated, the Commission's Network Protection Standard and its registration requirement are sufficient to prevent harmful interference to wireless networks. Therefore, it is appropriate to eliminate the personal use restriction in order to permit safe and effective wideband Consumer Signal Boosters to be used by all consumers, including those engaged in commercial activities.

I. SIGNAL BOOSTERS ARE INCREASINGLY IMPORTANT TO ENSURE THE AVAILABILITY OF WIRELESS BROADBAND NETWORKS FOR BOTH CONSUMERS AND BUSINESSES

Signal boosters provide an important tool for businesses and consumers to ensure their access to wireless broadband services. As the Commission's *Order* explained, "individual consumers, public safety entities, building owners, and many others, currently need signal boosters to meet their communications needs, particularly in rural areas."[7]

The public interest need for access to affordable signal boosters will continue to increase as broadband wireless services employ increasingly higher spectrum bands using 5G technologies. As the Commission acknowledged in its Spectrum Frontiers Order, the use of millimeter wave ("mmW") technologies for broadband data transmission in spectrum bands above 24 GHz will be characterized by "short transmission paths and high propagation losses,"[8] necessitating the need for signal boosters to increase the reach of mmW small cell networks. Wireless broadband coverage of indoor locations (where most smart phones are used) will also be extremely difficult using mmW spectrum bands because these mmW signals "are more

[7] *Id.*, ¶ 134.

[8] Use of Spectrum Bands Above 24 GHz For Mobile Radio Services, GN Docket No. 14-177, Report and Order and Further Notice of Proposed Rulemaking, FCC 16-89, ¶ 6 (July 14, 2016) ("*Spectrum Frontiers Order*"); *see also id.*, ¶ 271 (observing that "[t]he lower range and shorter propagation distances at these frequencies will substantially constrain 5G deployment").

severely attenuated due to obstacles such as foliage and walls."[9] Therefore, the public interest need for access to affordable signal boosters – both by businesses and consumers – will continue to increase.

The need for signal boosters is not just in people's homes, but also where they work, where they shop, where they receive important services (such as health care), and where they learn. In recognizing this, the *Order* concluded "[s]ignal boosters can benefit consumers by improving wireless coverage in office buildings where they work, in health care facilities, where doctors and health care providers need reliable communications, and on educational campuses where students want access to the latest wireless applications."[10] Further, the public safety community also relies on signal boosters to ensure the connectivity of emergency services. As the *Order* notes, "[f]irst responders, including emergency medical personnel, also use signal boosters to improve communications during disasters and other emergencies."[11]

The *Order* characterized the new rules for signal boosters as a comprehensive solution to the significant problems experienced by businesses and consumers in ensuring connectivity to wireless broadband networks. The *Order* claimed that "the rules the Commission adopts today should lead to more robust service for many Americans at home, *at work*, and on the road."[12] This claim was repeated verbatim in the Final Regulatory Flexibility Act Analysis for the

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[9] *See Order*, ¶ 276.

[10] *Id.*, ¶ 7.

[11] *Id.*, ¶ 8.

[12] *Id.*, ¶ 1 (*emphasis added*).

Commission's *Order*.[13] The *Order* further claimed that, in addressing the Small Business Paperwork Relief Act of 2002,[14] the rules adopted by the Commission "will benefit many *companies* with fewer than 25 employees because the rules we adopt should provide small entities with access to the coverage enhancing benefits of signal boosters that do not harm wireless networks."[15]

Unfortunately, none of these statements in the *Order* were true. The Commission's new signal booster rules did not lead to more robust wireless services for Americans at work. The rules did not provide small businesses with access to the coverage enhancing benefits of signal boosters either for their employees or their customers. In fact, when read literally, the adopted rules did not even benefit consumers in their homes or on the roads if they use their wireless devices for work-related purposes.

Not only was this result unfortunate for businesses and working consumers, but it was also arbitrary and illogical. No technical or policy reason exists to limit user-ready signal boosters solely to individuals for personal use. Consumer Signal Boosters can be used by businesses and working consumers just as effectively and just as safely as Consumer Signal Boosters can be used by individuals in their homes for personal purposes. There are no legitimate interference concerns to the use of Consumer Signal Boosters by businesses and working individuals. Therefore, the Commission should eliminate the arbitrary and illogical limit on the use of Consumer Signal Boosters by businesses and working consumers.

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[13] *See Id.*, Final Regulatory Flexibility Act Analysis, ¶ 2 (claiming "the rules the Commission adopts today should lead to more robust service for many Americans at home, at work, and on the road").

[14] Small Business Paperwork Relief Act of 2002, Public Law 107-198, *see* 44 U.S.C. 3506(c)(4).

[15] *Order*, ¶ 200.

II. THE COMMISSION'S SIGNAL BOOSTER RULES DID NOT PRESERVE A VIABLE APPROACH FOR BUSINESSES AND WORKING CONSUMERS

Prior to the Commission's adoption of its *Order*, many of Surecall's sales of user-ready "out-of-the-box" signal boosters was to small businesses. The *Order*, however, sought to exclude access to such signal boosters by businesses, directing them to use Industrial Signal Boosters instead. Unfortunately, Industrial Signal Boosters require the affirmative approval of every wireless carriers serving a particular location, which is difficult and time-consuming to secure. As the *Order* acknowledges, Industrial Signal Boosters "are designed for installation by licensees or qualified installers" and "require an FCC license or express licensee consent to operate."[16] Industry Signal Boosters are therefore unsuitable for use in small businesses and are instead designed to "cover larger areas such as stadiums, airports, office buildings, hospitals, tunnels, and educational campuses."[17]

As a result, the Commission's signal booster rules did nothing to help small business owners, their employees, or their customers to secure more reliable access to critically-important wireless networks. In fact, the *Order* arguably harmed these important groups by expressly prohibiting the continued marketing and sale of the user-ready signal boosters that were widely purchased and used by small businesses prior to the adoption of the *Order*.

The overt exclusion of this substantial market segment harms the public interest. As the *Order* acknowledged, small businesses constitute 99.9% of the 27.5 million businesses in the

[16] *Id.*, ¶¶ 5 and 17.

[17] *Id.*, ¶¶ 5 and 16.

United States.[18] Equally harmed will be small organizations and governmental entities, which the *Order* acknowledges include 1,621,315 of the former[19] and as many as 88,761 of the latter.[20]

Further, the *Order* also harmed individual consumers that conduct all or any portion of their work at home or on the road. The Commission's rules for Consumer Signal Boosters clearly state that such boosters are available only "for personal use by individuals."[21] This limitation is repeated in the adopted rules, which state that individual subscribers may operate Consumer Signal Boosters only "for personal use."[22] Regardless of what the Commission intended this prohibition to mean, when read literally it can be interpreted only to mean that individuals cannot use Consumer Signal Boosters for non-personal use, such as for purposes of their employment.

What is truly remarkable is that the *Order* provided no logical reason (public policy, technical or otherwise) for these arbitrary and burdensome restrictions. As explained in the *Order*, Consumer Signal Boosters that satisfy the Network Protection Standard are designed and manufactured in such a manner that they cannot cause harmful interference to wireless networks. This is true regardless of whether Consumer Signal Boosters are used by businesses, by organizations, or by individuals regardless of the purpose of their use, personal or otherwise.

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[18] *See Id.* (*citing* Small Business Administration, Office of Advocacy, "Frequently Asked Questions," *available at* http://web.sba.gov/faqs/faqindex.cfm?areaID=24 (last visited Dec. 11, 2012) (based on 2009 data)).

[19] *See Id. (citing Independent Sector, The New Nonprofit Almanac & Desk Reference* (2010)).

[20] *See Id.* (*citing* City and Towns Totals: Vintage 2011 – U.S. Census Bureau, *available at* http://www.census.gov/popest/data/cities/totals/2011/index.html; U.S. Census Bureau, Statistical Abstract of the United States, 2011, Tables 427, 426 (data cited therein are from 2007)).

[21] *Id.*, ¶ 13; *see also* 47 C.F.R. § 20.21(a).

[22] *See* 47 C.F.R. § 20.21(a).

III. THE COMMISSION'S NETWORK PROTECTION STANDARD FOR CONSUMER SIGNAL BOOSTERS IS CLEARLY ADEQUATE TO PROTECT WIRELESS NETWORKS FROM INTERFERENCE

The Commission initiated this proceeding to identify a reasonable balance between two important public interest goals – ensuring all consumers have ready access to reasonably affordable wireless signal boosters and adequately protecting wireless networks.[23] The result of this effort was the adoption of the Commission's Network Protection Standard for a new class of signal boosters called Consumer Signal Boosters. As the *Order* explained, Consumer Signal Boosters must comply with "stringent, industry consensus-based technical rules for Consumer Signal Boosters, which incorporate sufficient safeguards to mitigate interference to wireless networks."[24]

The Commission's confidence in its Network Protection Standard and the resulting technical capabilities of this new class of boosters was well established and has proven to be well founded. The new rules were crafted by a coalition of wireless industry participants (including major wireless carriers) and addressed all critical aspects of booster operations. Specifically, as the Order explained, pursuant to the Network Protection Standard, all Consumer Signal Booster must:

> (1) comply with the existing technical parameters for the applicable spectrum bands of operation;
>
> (2) automatically self-monitor certain operations and shut down if not in compliance with the Commission's new technical rules;
>
> (3) automatically detect and mitigate oscillations in the uplink and downlink bands;
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> (4) power down or shut down automatically when a device is not needed, such as when the device approaches the base station with which it is communicating;

[23] *Order*, ¶ 44.

[24] *Id.*, ¶ 2.

(5) be designed so that these features cannot be easily defeated; and

(6) incorporate interference avoidance for wireless subsystems.[25]

The Commission's Network Protection Standard also included significant additional technical requirements that regulate such critical booster design factors as the transmitted maximum noise power, equivalent uplink and downlink gain, maximum uplink and downlink gain limits, uplink power limits, out of band emission limits, and intermodulation limits. With respect to this final factor, the Commission adopted a rule requiring that the transmitted intermodulation products of a consumer booster at its uplink and downlink ports shall not exceed the power level of -19 dBm for the supported bands of operation. As Surecall noted in several filings in this proceeding, such intermodulation limits are comparable to what is required for wireless network base stations and are far more restrictive than necessary to ensure that signal boosters will not result in harmful interference to wireless networks.

With all signal boosters available on the market now compliant with the Commission's Network Protection Standard, no reason exists to limit the availability of Consumer Signal Boosters to a specific subset of consumers, or to a specific type of use. Instead, given the Commission's recognition that its Network Protect Standard ensures the protection of wireless networks, the Commission should permit unlimited use of boosters that comply with the Network Protection Standard and the carrier registration requirement.

IV. NO TECHNICAL OR PUBLIC POLICY REASON EXISTS TO PROHIBIT BUSINESSES AND WORKING CONSUMERS FROM USING CONSUMER SIGNAL BOOSTERS TO ENSURE WIRELESS CONNECTIVITY

Although the *Order* did not expressly address the issue, the Commission may have adopted its personal use restriction because of a possibility that boosters owned by individuals

[25] *Id.*, ¶ 57.

would be used almost entirely in a car or home by a single individual or family that subscribes to a single carrier. The *Order*, however, acknowledged that this will not be the case.

First, the *Order* recognized that individuals can have friends and neighbors that may visit their home and may make wireless calls that will be retransmitted through the network of the acquaintance's serving carrier by the individual's signal booster. The *Order* authorized this transient use by describing it as incidental and *de minimis*.[26]

The *Order* then explained that the Commission does not expect *de minimis* use to extend to "routine" use, which the *Order* described as "continued use of the signal booster by a third party (*e.g.,* housemates or family members with different wireless providers)."[27] The *Order*, however, acknowledged that routine third party use of signal boosters will nonetheless occur. Rather than attempt to prohibit such routine third party use, the *Order* more appropriately instructed that, "[i]f a third party intends to use a Consumer Signal Booster on a regular sustained basis, the third party must seek its provider's consent to do so."[28] In other words, the third party must register the booster with its wireless carrier.

The *Order* then extended this logical progression a step further, apparently recognizing that, in some residential situations – such as apartment buildings, condominiums, dorms and group homes – numerous individuals may be able to use the same Consumer Signal Booster to support their personal wireless needs. Again, the *Order* wisely refrained from trying to prohibit this collective use. Instead, the *Order* simply required that, "if a consumer purchases a Consumer Signal Booster for use in a location where subscribers of multiple serving providers

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[26] *Id.*, ¶ 48.

[27] *Id.*

[28] *Id.*

will access the device regularly, each such subscriber must register the device with their provider."[29]

Thus, pursuant to the Commission's signal booster rules, an individual could, in full compliance with the rules, purchase a signal booster and operate it in a location where a significant number of individuals could use the booster on a regular and routine basis to improve their wireless connectivity. Each of these individuals, however, would need to register the booster with their wireless carriers, resulting in a situation in which the same booster could be registered with all or nearly all of the wireless carriers that serve a particular location.

Far from being a problem, such a situation would actually be extremely beneficial because, once a booster has been registered with all or nearly all of the wireless carriers serving a particular area, each of those carriers will have first-hand knowledge regarding the location and model of the booster and an avenue to address any concerns that it may have in the exceedingly unlikely event that the booster causes harmful interference to a wireless network.

Having undertaking this logical progression in the development of the Commission's rules, however, the Order then stopped and did not consider the next logical step. Specifically, if a Consumer Signal Booster can be safely and effectively used by multiple individuals to serve their personal wireless needs (and obviously it can), there is no reason why that same signal booster cannot be used in a business or retail establishment to serve the needs of multiple customers and employees. The only difference is a purely administrative one – the owner of the business or retail establishment would need to register the booster with each and every wireless carrier serving that location, including carriers with which the business owner may not have a carrier/subscriber relationship. Of course, as long as the booster registration process

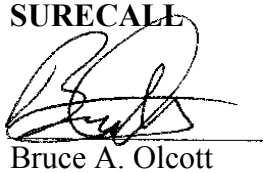
[29] *See Id.*, ¶ 104.

allows business owners to register boosters with carriers that they do not have a subscriber relationship with, this should not be a problem. Further, it would provide a significant benefit because each and every wireless carrier would then have first-hand knowledge of the location and model of a signal booster in the unlikely event that a problem might arise.

Therefore, the Commission should address the wireless access needs of all consumers including working consumers in their places of business, where they shop, where they receive important services and where they attend school. This should be accomplished by eliminating the arbitrary and illogical prohibition on the use of Consumer Signal Boosters by businesses and by individuals for non-personal use. No public policy or technical reason exists to maintain such burdensome restrictions and, as the Commission has acknowledged, access to reasonably affordable and readily available "out-of-the-box" signal boosters greatly benefit consumers not only in their homes, but also where they work, shop and receive services. Therefore, such a logical modification of the Commission's rules for Consumer Signal Boosters would greatly benefit the public interest.

Respectfully submitted,

SURECALL

By: 

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